



**UNITED STATES DEPARTMENT OF COMMERCE  
Patent and Trademark Office**

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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. |
|-----------------|-------------|----------------------|---------------------|
|-----------------|-------------|----------------------|---------------------|

09/510,828 02/23/00 HEMBREE

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023368 MM91/0911  
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EXAMINER

MITCHELL, J

ART UNIT

PAPER NUMBER

2822

DATE MAILED:

09/11/01

**Please find below and/or attached an Office communication concerning this application or proceeding.**

**Commissioner of Patents and Trademarks**

# Office Action Summary

Application No.

09/510,828

Applicant(s)

HEMBREE ET AL.9

Examiner

James Mitchell

Art Unit

2822

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☐ Responsive to communication(s) filed on 29 June 2001.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☐ Claim(s) 29-31,36-40,44-47,50,51,54-56,63-65,68-71 and 73 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) 53-56 and 68 is/are allowed.
- 6) ☐ Claim(s) 29-31,36-40,44,47,50,51 and 63-65 is/are rejected.
- 7) ☐ Claim(s) 45,46 and 73 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.  
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

## Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☐ All b) ☐ Some \* c) ☐ None of:  
1. ☐ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).  
\* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).  
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

## Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_\_ 6) ☐ Other: \_\_\_\_\_

### DETAILED ACTION

1. This office action is in response to the amendment filed June 29, 2001.

#### ***Claim Rejections - 35 USC § 112***

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claims 51 and 51 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. It is indefinite as to what applicant means by "engage outer edge". What portion of semiconductor does applicant characterize as the outer edge. Is the "outer edge" the peripheral portion along the side of the semiconductor? ✓

#### ***Claim Rejections - 35 USC § 102***

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claims 29-31, 44,47,63-65 are rejected under 35 U.S.C. 102(b) as being anticipated by Smith (U.S 6,064,217).
5. Smith discloses (Fig. 6) an interconnect structure (4) with a plurality of conductors (4c) to match corresponding ones (2a) of semiconductor die (2), an attachment device (20) comprising an elastomeric conductive member (4a) which contains an elastomeric member with inherent: spring characteristics, conductive particles and holes or cavity within elastomer defined by the space consumed by the conductive member within the elastomer material.

6. Admittedly, Smith does not disclose the modulus of elasticity, however if applicant's holes within said elastomer member affects the overall modulus of elasticity then the prior art's overall modulus of elasticity likewise is different.

***Claim Rejections - 35 USC § 103***

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. Claims 36-40 are rejected under 35 U.S.C. 103(a) as being unpatentable over Smith as applied to claim 29 and further in view of Rosen (IEEE, "A Comparison of Metal in Elastomer...").

9. Smith further discloses said semiconductor electrically bias through conductive elastomer spring element within a ball grid array package (Lines 50-57, Column 16).

10. Smith does not disclose the conductive material of the conductive elastomer, however Rosen utilizes Gold and Nickel particles within an elastomer material (Fig.3).

11. It would have been obvious to one of ordinary skill in the art to form the conductive elastomeric material of Smith with gold and nickel in order to increase corrosion resistance as taught by Rosen (abstract).

***Allowable Subject Matter***

12. Claims 45,46 and 73 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

13. Claims 53-56 and 68,69 are allowable.

14. The following is a statement of reasons for the indication of allowable subject matter: The prior art does not disclose or make obvious a second elastic member being positioned in the holes of the first elastic member, the conductive member comprising carbon, or an elastic member having a variable spring constant.

### ***Conclusion***

15. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Wood et al. (U.S 5,726,580), Potter (U.S 6,028,437), Stroupe (U.S 6,069,028) and Ling (IEEE, "...Compressed Elastomeric Connector Spring.")

The prior art discloses in Wood the use of an elastomer material as a biasing mechanism, in Potter the use of an elastomer in testing apparatus, in Stroupe the use of gold and copper as varying materials interspersed within an elastomeric member, in Ling the use of elastomers for a spring force.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to James Mitchell whose telephone number is (703) 305-0244. The examiner can normally be reached on M-F 10:30-8:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Carl Whitehead Jr. can be reached on (703) 308-4083. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 305-3432 for regular communications and (703) 305-3230 for After Final communications.

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Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.

jmm  
September 10, 2001

*Carl Whitehead, Jr.*  
CARL WHITEHEAD, JR.  
SUPERVISORY PATENT EXAMINER  
TECHNOLOGY CENTER 2800